United Nations E/ICEF/1999/AB/L.6

Economic and Social Council

Distr.: General
5 April 1999

Original: English

United Nations Children's Fund
Executive Board
Annual session 1999
7–11 June 1999
Item 7 of the provisional agenda*

For information

Progress report on the UNICEF strategy and investments in information technology

Summary

The present report outlines the UNICEF information technology (IT) strategy and reports on current progress in IT investments and projects.

* E/ICEF/1999/8.

99-09466 (E) 160499

Contents

		Paragraphs	Page
	List of abbreviations		3
I.	Introduction	1–4	4
II.	The role of information technology in UNICEF	5–9	4
III.	The UNICEF global information technology environment: the past and the present	10–19	4
IV.	Information technology implications for the future	20–28	5
V.	Strategic framework for the information technology function	29–32	6
VI.	Information technology governance: structure and system	33–42	7
VII.	Information technology programmes, projects and services	43–80	7
	A. Programme Manager System	44–48	8
	B. Financial and Logistics System	49–52	8
	C. Integrated Management Information System (Human Resources)	53–57	9
	D. Initiative exploiting the Internet and Intranet for knowledge management	58–65	9
	E. Customer and end-user support	66–69	10
	F. Global network connectivity	70–71	11
	G. Information technology security and disaster recovery	72–75	11
	H. Infrastructure and enterprise management	76–80	11
VIII.	Inter-agency cooperation	81–84	12
IX.	UNICEF information technology investments	85–92	12
X.	Areas requiring further development	93–103	13
	A. Communication channels	94–95	13
	B. Resource management systems	96–98	14
	C. Information management	99–100	14
	D. Information technology organization	101	14
	E. Information technology infrastructure and support services	102–103	14

List of abbreviations

CIO	Chief Information Officer
EIC	Electronic Information Committee
EIS	Electronic Information System
FLS	Financial and Logistics System
GFSS	Global Field Support System
IMIS	Integrated Management Information System (United Nations)
IMIS-HR	Integrated Management Information System — human resources module
IT	information technology
ITD	Information Technology Division
ITO	Information Technology Operation
LAN	Local area networks
MEP	Management Excellence Programme
MOU	Memorandum of Understanding
NGOs	non-governmental organizations
PDC	Programme Document Centre
PKN	Programme Knowledge Network
PROMS	Programme Manager System
PSD	Private Sector Division
SAP	Systems, Applications and Products
SCSC	Systems Coordination Steering Committee
SITA	*Société Internationale de Traffic Aérien*
TMWG	Transition Management Working Group

I. Introduction

1. The present report outlines the UNICEF information technology (IT) strategy and discusses progress in current IT investments and projects. The report on IT, which has not previously been the subject of a report to the Executive Board, has been prepared in response to a request by the Advisory Committee on Administrative and Budgetary Questions for a comprehensive "office automation" strategy for UNICEF (in its report on the biennial support budget for 1998–1999 (E/ICEF/1998/AB/L.2)) and to comments by Executive Board members during their discussion of the budget itself (E/ICEF/1998/AB/L.1).

2. IT is a core function that enables UNICEF to fulfil its goals in advocacy, information-sharing and fund-raising and to achieve medium-term objectives in management and operations. IT also facilitates the availability and use of data in critical areas.

3. The IT management leadership, the establishment of a strong, commercial-strength IT infrastructure and the development and effective use of new integrated systems are the foundation and tools that support, facilitate and enhance the implementation of redefined roles, accountabilities and interrelationships among country, regional and headquarters offices.

4. Strategic directions outlined in the present report and reflected in the corporate IT plan have been established in five critical areas: (a) IT management, governance and organization; (b) integrated systems for resource management; (c) exploitation of the Internet and Intranet for knowledge management; (d) global connectivity; and (e) the IT infrastructure required to support these areas.

II. The role of information technology in UNICEF

5. The full impact and successful exploitation of IT is underestimated if it is regarded simply as automation of existing functions, or a software implementation effort. Rather, it is an initiative of wide-ranging changes, consisting of major projects that revolve around the redesign of functional or organizational processes, change and transition management, which must be accompanied by training and coaching elements to capitalize on its benefits.

6. Appropriate use of IT is key to achieving maximum performance in a number of areas: enabling timely access to information on the situation of women and children for programme design; providing information on the use of resources in programme delivery; and day-to-day communication between UNICEF staff and partners around the world.

7. The UNICEF mission to help children "meet their basic needs and to expand opportunities to meet their full potential" is achieved through UNICEF cooperation within the country programme framework. This type of successful collaboration relies on IT for effective management of programmes and financial and human resources, as well as for the dissemination and use of programme information and know-how.

8. Through the development and use of new integrated systems, the IT structure also facilitates the implementation of the objectives of the Management Excellence Programme (MEP), which has redefined roles, accountabilities and relationships among country, regional and headquarters offices.

9. The UNICEF mission to "advocate for the protection of child right" is greatly advanced by the fast-paced growth of technological development in electronic communications and the Internet. IT facilitates the collection, analysis and use of data that supports the organization's goals. IT then ensures that the information gathered is disseminated and made accessible not only inside the organization but also externally to such key partners as Governments, National Committees for UNICEF, non-governmental organizations (NGOs) and other United Nations agencies, as well as to the general public.

III. The UNICEF global information technology environment: the past and the present

10. From the 1970s, IT progressed from clerical automation and punch card computing to online, transaction-based systems operating on mainframe/mid-range computing a decade later. By the late 1980s, the development of the personal computer with client/server computing offered decentralized, multi-tiered, partitioned, event-driven options. This opened new possibilities for productivity and distributed computing.

11. Prior to the introduction of e-mail throughout the organization in the mid-1990s, the IT function and office automation principally referred to the financial systems used by field offices — the Global Field Support System

(GFSS) — and a series of separate applications processed on mainframe or mini-computers in headquarters locations.

12. Another revolutionary factor in the changing IT environment is the advent of the Internet. The global accessibility that it offers continues to have an unprecedented impact on how business is conducted.

13. Up to a few years ago, a typical UNICEF office had 10–20 stand-alone desktop computers. Only a few large or very advanced offices had installed local area networks (LANs). GFSS worked on separate machines, with information passed manually on diskette. Staff used WordPerfect, with a few advanced users operating with Lotus 1,2,3 and Harvard Graphics.

14. The UNICEF IT environment is comprised of 245 offices located in over 136 countries around the world. Within the past five years, IT usage in UNICEF has grown tremendously. Today, all headquarters and almost all field offices have LANs, with all staff at all levels networking, passing documents and e-mail, sharing files, etc., on one standardized platform (Windows95/98, Office97 and cc:Mail). In addition, more then 60 per cent of UNICEF offices have access to the Internet and Intranet, with this number growing rapidly.

15. UNICEF has evolved from being a "paper-centric" to an "e-mail-centric" organization, and is in the process of becoming "Intranet-centric". In other words, where transactional data, correspondence and information previously were paper-based and routed through the organization and to external partners through pouch and mail services, they now are electronic-based, with a vast proportion being transmitted by diskette or circulated through e-mail.

16. The installation and maintenance of LANs in field offices that connect them by e-mail to headquarters and other offices has had a revolutionary impact, with electronic communication now essential to the functioning of field offices and the organization as a whole. The electronic transmission of information and organizational documentation is immediate and democratic; it has facilitated inter-office communication, empowered staff at all levels of the organization, enforced transparency and accountability and increased turn-around time. Challenging by-products of this progress are an increase in the demand for and supply of information, and the need for proper management of electronic or "institutional memory" to preserve key documentation and correspondence.

17. Many UNICEF offices are located in countries where the telecommunications and basic power infrastructure are weak, requiring an uninterrupted power supply and generators to protect the equipment and guarantee operations. Also, UNICEF offices are in countries that increasingly experiencing instability, civil strife or ongoing emergency situations, and require radio and other communications capacities to enable them to function. To operate effectively in the field, UNICEF must be able to ensure the electronic transmission of data under such circumstances where response speed is critical. Satellite telephone communications are effective but expensive. However, alternative technologies, such as the implementation of radio hubs in two subregions, are being explored with positive results.

18. Most offices run several local databases and all are setting up or are already running the Programme Manager System (PROMS), which requires routine data replication and advanced database management.

19. In recent years, UNICEF has invested in desktop computers and a new set of integrated systems and has provided ad hoc training for staff. However, owing to financial and personnel constraints, UNICEF has not been able to invest adequately in the IT organization or the technical infrastructure needed to ensure the sustainability of critical IT infrastructures and systems.

IV. Information technology implications for the future

20. To keep pace with changing technology, UNICEF must routinely update both hardware and software in order to remain operational. This requires that IT staff master new technology in all systems areas where they are expected to support users. These include desktop computers, networks, databases, office automation software, messaging software, transaction-processing applications, Internet access, shared group-work tools, data replication and sophisticated telecommunication systems.

21. IT staff, therefore, are facing tremendous challenges. Users are becoming more sophisticated daily and they expect, indeed demand, more from IT and even more technology. As the range of technology and the degree of sophistication of usage develops, the pressures facing IT staff also grows, and their capacity to plan, prioritize, and manage conflicting demands needs to grow correspondingly.

22. Technological developments in IT also offer new areas or opportunities for operational integration, information dissemination for programming purposes and advocacy, and

such fund-raising opportunities as, for example, through electronic commerce.

23. In order to communicate with and maintain a competitive advantage alongside other development organizations and partners, UNICEF must use the Intranet to develop and utilize a secure data and information exchange and availability for internal purposes. Similarly, the Extranet and the Internet are best suited for external relations and strategic information purposes.

24. These changes are happening in a context where the demand for good IT professionals is growing rapidly throughout the industry, with commensurate salary increases. Competent IT staff are becoming more difficult to find and retain, especially given constraints in the United Nations system of post classification and salary structure. These challenges need to be addressed urgently. Limitations on UNICEF resources also create constraints.

25. Without adequately knowledgeable and skilled staff, investments in IT have a high risk of failure. This has a direct impact on programme delivery and effective management of resources. In recognition of the personnel requirements for maintaining highly complex IT operations, including the successful implementation and future maintenance of new application systems, a limited amount of posts were reclassified and progress made in this area during the 1998–1999 biennium. Further organizational adjustments and strengthening of the Information Technology Division (ITD) will be part of the 2000–2001 biennial support budget, to be submitted to the Executive Board in September 1999.

Year 2000 — the millennium transition

26. A key concern in IT is the so-called millennium bug, or year 2000 ("Y2K") problem. In the early days of writing programmes for computers, two numbers, instead of four, were used to indicate the year. Many of these old programmes are still in use today. As a result, there is the potential that when the calendar clock turns to 2000, computers or appliances with microprocessors or embedded computer chips that have not been made Y2K-compliant will read the year 2000 as 1900, thus causing computer malfunction or failure. This applies not only to computers but also to software applications and any machine that has a computer chip as part of its operation, including photocopiers, elevators or banking systems. Y2K compliance refers to the precautions that companies, banks and other institutions have taken to reduce the risk of this occurring.

27. UNICEF has been addressing the issue since May 1998. ITD has issued instructions on Y2K compliance for UNICEF computer software and hardware in all offices. Actions include establishing and clarifying an official UNICEF policy and position on software and systems standards; and sharing via CD-ROM the latest software patches, updates and fixes for products from different vendors when available. Offices have also been instructed to request Y2K compliant releases (where this is required due to licensing implications); and have been informed about the status of Y2K compliance for UNICEF standard hardware acquired since 1994. The deadline for the implementation of the appropriate fixes in all locations is June 1999. At headquarters, the replacement of non-compliant Y2K legacy systems is well under way, with the implementation of the new set of integrated systems.

28. UNICEF locations that use appliances or services from external vendors can also be affected by the Y2K problem. The Division of Financial and Administrative Management has instructed all offices to contact all equipment vendors to request written verification that their devices are year 2000 compliant, or to ask them to specify the type of repairs and/or replacements that may be required to comply.

V. Strategic framework for the information technology function

29. The UNICEF IT organization has been repositioned as a customer- and field-oriented and service-based division of UNICEF instead of a "back-office" support function. ITD has developed a strategic framework that includes a vision, a mission and strategic IT directions and initiatives.

30. The vision is to add value to UNICEF internal and external partners and customers by providing secure and "best in class" information management systems, networks, services and support based on strong leadership, credibility and IT know-how.

31. The mission is to help UNICEF to achieve its strategic business objectives by enabling the integration of IT within the business processes, and by providing innovative, effective, secure and integrated business information solutions and systems.

32. The IT strategy being implemented by UNICEF goes far beyond tactical measures to migrate off obsolete platforms, to reduce the costs of legacy system maintenance or to solve Y2K problems. IT should not be dissociated from the environment in which it operates. As an enabler and transformer of integrated business systems, IT supports the

relationships between strategy, structure and management processes, and the proscribed roles of individuals. This has been tackled within the MEP, and in the development and implementation of the three core systems that manage UNICEF information: the Integrated Management Information System for human resources (IMIS); the Financial and Logistics System (FLS) for finance and logistics; and PROMS for the management of field data.

VI. Information technology governance: structure and system

33. In 1997, the former Office of Information Resource Management was reorganized and upgraded to a full division — ITD, with the Director, at D-2 level, as the Chief Information Officer (CIO). All aspects of IT, information systems, telecommunications and information management infrastructure are consolidated under the leadership of the CIO as part of a comprehensive IT strategy. The UNICEF IT function incorporates all IT staff and resources across the organization, with ITD operating as one network of service centres with appropriate administrative reporting structures.

34. In 1998, UNICEF established an integrated corporate IT plan across divisions and regions, with specific headquarters and field objectives. This plan is updated on a yearly basis. The accountabilities of ITD were described in "The Organization of UNICEF" (E/ICEF/Organization/Rev.3), which was presented to the Executive Board at the 1998 annual session.

35. The governance system enables ITD to have input into organizational strategic planning and policy formulation processes, thus ensuring overall strategic coherence for UNICEF. It also insures that IT priorities and strategies are established in conjunction with other divisions. The governance process has been established or is being developed in a number of areas.

36. At headquarters, the Systems Coordination Steering Committee (SCSC) has been established to ensure coordinated development of the integrated management information system, in the most efficient and cost-effective way, serving the priority needs of the organization. The SCSC is comprised of division directors, or substitutes with decision-making authority, representing the major headquarters divisions. The SCSC approves priorities, work plans, budgets and conceptual design of integrated system; establishes interdivisional policies; resolves conflicting priorities; and oversees project progress for all the systems comprising the integrated management information system.

37. Subsidiary groups of the SCSC are the Standing Working Group, which manages and coordinates the work of the system's projects; project teams; and the project managers' group, which also incorporates the legacy systems. The latter group meets on a regular basis to ensure compliance with common standards in all areas of IT, and to deal proactively with issues of interrelated or common concern.

38. A governance mechanism for an integrated information management strategy for the management of information relating to children and women is being constituted.

39. The Electronic Information Committee (EIC) is the governance mechanism for the UNICEF Internet, electronic information services or initiatives, including World Wide Web pages for external audiences or participants, or for those that may impact advocacy, mobilization, fund-raising and education for development.

40. The establishment of regional governance structures with linkages to the Regional Management Teams became mandatory in 1998. Existing regional governance structures have raised awareness of IT issues, developed regional action plans, identified regional priorities and maintained momentum on the issues. These structures are being refined and strengthened based on experiences gained to date.

Global participation

41. A global IT meeting is held annually, bringing together not only IT staff from the regions and some field offices, but also representatives and headquarters staff from different divisions, to assess progress in the implementation of the global IT work plan. The meeting addresses issues of common concerns and emphasizes the importance of IT accountabilities throughout the organization.

42. A full set of technology standards has been reviewed by the regions, countries and headquarters locations. These standards are published and updated periodically and have been incorporated in the organization's procurement policies, thus reinforcing a binding set of corporate IT standards for UNICEF.

VII. Information technology programmes, projects and services

43. There are three major integrated systems under implementation that will provide the entire organization with state-of-the-art, commercial-strength technology and a common database set by which UNICEF can more

effectively manage and be accountable for the use of human, financial and physical resources:

(a) PROMS, which replaces GFSS, is a field-based system for planning, budgeting, requisitioning, spending and monitoring the use of funds and other resources against programme objectives;

(b) FLS is the central financial system which will enable UNICEF to meet its statutory accounting obligations, and provide management with the necessary financial information to ensure that all resources are protected and managed efficiently and effectively on a day-to-day basis;

(c) The human resources module of IMIS (IMIS-HR), developed and maintained by the United Nations, is the UNICEF central human resource management system, which will allow the Division of Human Resources to manage central transactions regarding recruitment, rotation, payment, provision of benefits, etc., for those staff managed by headquarters. IMIS-HR is also the front end to the United Nations payroll system.

A. Programme Manager System

44. The PROMS project was initiated in late 1996 in response to a groundswell of requests from the field for a more rigorous and supportive programme tool and because the United Nations IMIS could not support UNICEF programme management requirements. The goal was to replace GFSS with a computer system that addresses all business requirements and establishes a linkage between programme and project plans, outputs and budgets. PROMS was also designed to provide a tool for more accurate budget monitoring by more closely integrating the field system with headquarters systems.

45. The innovative design process of the system involved users in a series of meetings, where principles of the design and other details were worked out for specific parts of the system. PROMS also addresses a number of problems faced by GFSS, such as delayed financial reconciliation; poor resource monitoring; repetitive tasks and duplication of entries; customized systems and data in each field office; no early warning for problems; and no standard planning feature.

46. The PROMS database is a series of replicating databases in each office, which uses e-mail to send information to a consolidated database (called a hub) in New York. Thus, on a daily basis, transactions entered in the field are sent to New York and are accessible from the consolidated database. They can then be passed to the appropriate system in New York or Copenhagen. The flow of information can also go from New York or Copenhagen to each field office to allow timely delivery of corporate data, such as the Supply Division catalogue and corporate staff tables.

47. The second phase of the project will also include human resource management and payroll for field offices. An integrated payroll and human resources management system, linked to plans and budgets, will be rolled out to field offices during 1999, decentralizing the human resource management function for local staff to the country office level, and employing a single standard payroll function that conforms with United Nations requirements.

48. The first country office migration to PROMS occurred in February 1998, and now, one year later, more than one half of UNICEF offices are using PROMS. This falls short of the original target of all offices running PROMS by the end of 1998. Roll-out has been delayed by a variety of factors, including an underestimation of the complexity of data conversion and cleansing; insufficient Help Desk support; inadequate field connectivity and infrastructure; and a lack of preparation at the field level for this major shift in work processes and procedures. Ongoing efforts during the first half of 1999 should result in over 90 per cent of field locations running PROMS by May 1999.

B. Financial and Logistics System

49. FLS is based on the Systems, Applications and Products (SAP) commercial data processing financial package. The final prototype configuring UNICEF requirements was completed in April 1998, followed by testing, fine-tuning and data cleansing, and going live in January 1999. FLS integrates and maintains business and transaction data from all three headquarters locations (New York, Copenhagen and Geneva, including the three warehouse locations in New Jersey, Huningue and Copenhagen), in real time and in a single database that is interfaced to PROMS and IMIS.

50. To facilitate the transition from the legacy systems to FLS, a Transition Management Working Group (TMWG) was set up in mid-1998. TMWG is a cross-divisional group that includes staff representation to ensure efficient and coordinated transition, in line with the work plan and timetable agreed to by the project owners. The scope of the group covers business process reviews, communications, end-user training, data conversion and data initialization. The TMWG will continue with its mandate through 1999.

51. The benefits of FLS are numerous. In the past, there were over 100 non-integrated systems on different platforms, some of them obsolete or not Y2K-compliant. FLS is a unified system that has streamlined UNICEF business processes, simplified systems maintenance and reduced data entry; it automatically enforces business rules and automates year end processes and on-line reporting, thus permitting more integrated and timely management reports. The system is also Y2K and euro-currency compliant.

52. Common to all systems is the completion and full functionality of interfaces between PROMS, FLS and IMIS and the initiation of a data warehouse. The legacy systems will be maintained until phase-out, with only mandatory bug fixing, no enhancements and a major focus on data cleansing and conversion. The legacy systems are scheduled to be archived by the end of 1999.

C. Integrated Management Information System (Human Resources)

53. The development of the IMIS for the United Nations was approved by the General Assembly in December 1988, with the stated purpose of having an integrated system for processing and reporting on administrative actions at all major duty stations.

54. Following a thorough review and evaluation of the United Nations IMIS, UNICEF determined that IMIS did not provide the functionality it required for finance, programme and contributions. Additionally, the account structure did not support either the UNICEF Financial Regulations and Rules or the commercial aspects required by UNICEF for fund-raising and management of its Private Sector Division (PSD).

55. In 1995, at the request of the Secretary-General, and due to a lack of viable alternative at that time in terms of payroll, UNICEF migrated its headquarters human resources systems and began to implement of Releases I and II of IMIS, which cover personnel (posts and all actions relating to recruitment, promotion, transfer and separation) and entitlements, respectively.

56. UNICEF installed Release I in May 1998 and also implemented major enhancements to make the system function at a level equivalent to that of the legacy systems. UNICEF also developed recruitment and classification modules as those present in IMIS were not adequate. Most of these add-on modules and enhancements have been incorporated into the IMIS base system and are now available to other United Nations organizations. UNICEF went live with Release II, for entitlements, in January 1999.

57. Implementation of Release IV, covering payroll, had been planned and budgeted for 1997–1998, but due to delays in the overall development of IMIS at the United Nations, the date has been changed to September 1999 for the United nations and early 2000 for other agencies. The United Nations is taking action to ensure that its legacy payroll system is made Y2K compliant. UNICEF is currently reviewing the operational modalities for interfacing IMIS payroll with FLS.

D. Initiatives exploiting the Internet and Intranet for knowledge management

58. To maximize fully the benefits of the Internet, Intranet and Extranet, specific strategies must be in place. These are: enhancing document classification; implementing an information management strategy; updating and sustaining the content of the UNICEF site on the World Wide Web; and changing the work practices of most staff to increase use of these tools.

Internet

59. The consolidated UNICEF Internet site on the World Wide Web (www.unicef.org) is used for advocacy, information and fund-raising. Global advocacy using the World Wide Web requires effective Internet management. ITD and the Division of Communication have jointly established and disseminated guidelines for the Internet, which are updated periodically. The guidelines cover UNICEF web specifications, centralized hosting of all UNICEF field web sites, links with commercial web sites and tips on web site development. The web technical infrastructure and staging processes have been upgraded to support this, and processes for centralized web hosting are being documented and put into effect.

60. Sustaining the content of a web site is a challenge faced not only by UNICEF but by all organizations utilizing the Internet. The UNICEF guidelines for the Internet caution users on this issue, and the governance process, which is provided by the EIC, helps to avoid initiatives that cannot be sustained.

61. In 1997 and 1998, the number of visitors to the UNICEF web site more then tripled from below 1 million per month to an average of almost 4 million per month. Usage statistics reveal that the audience is broad-based, with visits from all regions of the world including developed

countries. All major publications such as *State of the World's Children* report and *The Progress of Nations*, press releases and basic UNICEF information are offered online. The site also hosts interactive views through Voices of Youth, material relating to the International Children's Day of Broadcasting and fund-raising, demonstrating that the web has strong advocacy potential and is a cost-efficient means for reaching a young, literate and interested population.

Intranet

62. The UNICEF Intranet is steadily becoming the working tool for UNICEF staff worldwide. A survey conducted in 1998 revealed that offices use the Intranet to verify policies and procedures or exchange rates. With newer sites such as the Programme Document Centre (PDC), the Learning Web and the Vacancy Bulletin, the Intranet is becoming an increasingly valuable reference centre for programme-related information, self-paced training materials and general information. Staff response to the new material has been extremely positive, as measured by the monthly increase in "hits". Although most offices have Internet access, slow speed discourages regular and active use. To alleviate this problem, ITD distributes quarterly a CD-ROM of all Intranet content, which can be accessed by computer users through the local office LAN.

Programme Document Centre and Programme Knowledge Network

63. Within the Intranet, the PDC and the Programme Knowledge Network (PKN) support one of the newly defined accountabilities of Programme Division for knowledge generation and management. UNICEF has valuable information about the situation of women and children, including studies, statistics, evaluations, technical papers and research findings. Traditionally located in libraries and bookshelves in various locations worldwide, this information is being made available to all staff globally in a cost-effective manner through the PDC, using current technology. The PDC, which originally held programme documentation, is being enhanced with other materials, such as lessons learned in a very wide spectrum of topics. During 1997–1998, Programme Division began to develop and test a prototype system — the PKN — which encompasses this material. Technical infrastructure enhancements are required to bring the prototype up to scale for use in all country, regional and headquarters locations. Availability to other agencies via the Internet or Extranet is also being explored.

Extranet

64. The UNICEF Extranet provides National Committees for UNICEF, Executive Board Members and selected NGOs and other UNICEF partners with access to different types of UNICEF-related information. The initial content covers Executive Board documents and decisions, the Media Planner (for National Committees) and the UNICEF e-mail address list, as well as selected programme and advocacy information. Enhancements will begin in mid-1999. Possible expansion will be considered, based on the feedback and interest of the partners.

E-commerce

65. Ongoing developments in commerce via the Internet (e-commerce) have strategic value for UNICEF and its National Committees through greeting card sales, advocacy and fund-raising. The UNICEF web presence and Internet commerce thus represent serious business propositions that require thoughtful, coordinated and informed responses. PDS, in association with National Committees and ITD, will explore and determine the future direction for UNICEF in this area.

E. Customer and end-user support

66. ITD is improving customer focus and the quality of services for field and headquarters locations. The Help Desk is evolving from a New York-based support that helps users with machine configurations, trouble-shooting and problem solving, to a global service centre providing technical support and advice, responding to technical, business and applications process queries, including for PROMS, FLS, and IMIS. The global span of UNICEF operations and time differences demands that IT support from headquarters must be a 24-hour, seven-days-per-week operation.

67. By implementing a global IT Help Desk with expanded hours, UNICEF will provide better support to the field, especially offices in Africa and Asia. For the present, the Help Desk must continue to be situated in New York, where development teams are located, and since the regional IT structure is not staffed to take on this additional role. To understand better and support the real needs of field offices, a majority of Help Desk staff must have field experience. Since the global service centre is a function within ITD, field staff can be rotated, thereby increasing their skills, enabling them to support better their countries and regions.

68. In 1997, a Help Desk tool was introduced for problem-tracking and version control. This "one-stop shopping" approach aids the resolution of most issues, directs advanced problems to appropriate technical experts and communicates responses to the field. Enterprise management will soon replace this tracking system and install a more sophisticated state-of-the-art set of tools throughout ITD. The immediate benefits of such systems are the ability to recognize training needs, better tracking of application versions and the automatic distribution of fixes. It also enables the consolidation of multiple problems caused by a single failure, and simultaneous closure of all problem tickets.

69. End-user support is further promoted and supported by the focal point function, the outsourcing of a support unit for laptops and the use of proactive communication tools. Printed material, such as "HelpDesk Express", "Tips, Tricks & Techniques", and "Plugged-In", the ITD newsletter, which are shared globally through the Intranet, increase user skills and alert them on a number of issues, including the need for back-up and increased security. Additionally, the introduction of CD-ROM and web-based training modules enables cost-effective and self-paced technical training of IT staff.

F. Global network connectivity

70. Global network connectivity has been rapid, with all countries connected to e-mail (cc:Mail) and over 100 countries using the "x28" and "x25" dial-up services of the of the *Societe internationale de traffic aerien* (SITA), a non-profit organization providing telecommunications for the airline industry and other selected partners. SITA provides a more efficient and cost-effective means for many field offices to connect to New York for their e-mail services. However, countries with poor infrastructure, legal restrictions, low available bandwidths and last-mile connection problems that severely limit data throughput for Internet and PROMS file transfer, are still facing many challenges. Additionally, UNICEF traffic, of which almost two thirds is regular e-mail, one fourth PROMS data transfer and 12 per cent Internet mail, will expand as PROMS is implemented in all locations and as field staff increasingly use Internet and Intranet services.

71. The implementation of the global network strategy has contained UNICEF telecommunication costs as traffic volume has increased seven-fold. Developing a global virtual private network through SITA "IPConnect" offers a secure, fully managed, end-to-end service with guaranteed throughput, service level agreements and unlimited traffic, all at a fixed cost. Other network initiatives include separating the global PROMS hub from the New York hub and minimizing cc:Mail downtime and disruption through server redundancy and "bullet proofing" of the cc:Mail New York hub servers. The implementation of the selected enterprise management systems tools for LAN and wide-area network monitoring will also help to further these goals.

G. Information technology security and disaster recovery

72. As UNICEF becomes more reliant on IT systems, a comprehensive IT security strategy needs to be put in place. A network security strategy for field locations is dependent upon the upcoming SITA "IPConnect service", and therefore will need to coincide with the SITA "IPConnect" roll-out.

73. Creating, maintaining and sustaining a secure, global, cost-effective and robust IT infrastructure requires a number of activities. An immediate concern is ensuring that the UNICEF-controlled IT infrastructure is made Y2K compliant, including a simulation exercise by mid-1999.

74. One basic element of an IT infrastructure security strategy has been formulated and implemented for New York, Geneva and Copenhagen. All three locations are utilizing a leading industry package (Firewall software) that secures all UNICEF systems and the Intranet.

75. Disaster recovery options and forms have been reviewed, especially for FLS and the PROMS hub. In the meantime, in lieu of a comprehensive disaster recovery set of systems, UNICEF has established a stringent policy for daily off-site data back-up and off-site storage. Selected elements of the infrastructure are also enhanced or made redundant to reduce the risks of failure.

H. Infrastructure and enterprise management

76. Global management of the IT infrastructure and systems is a costly and extremely challenging endeavour. In the past, systems and infrastructures were dispersed and autonomous. The absence of a unified systems management resulted in the creation of numerous "islands" of incompatible systems and infrastructure with poor support and obsolete processes. Today, as all systems are globally integrated and information is automatically transferred across them, managing a global infrastructure is not an option but a necessity.

77. UNICEF requires a set of enterprise management systems to monitor and/or manage all key IT assets, including the SITA Global Virtual Private Network and such key field office hardware as PROMS servers and cc:Mail routers. The primary overall objective for implementing an enterprise management system in UNICEF is to reduce the risks associated with end-to-end service delivery of systems applications and information, particularly related to the roll-out and sustainability of PROMS.

78. Enterprise management will be divided into at least two phases. The first will concentrate on the underlying tools and infrastructure required to support PROMS at New York headquarters. This includes a Consolidated Service Desk, integrated with SITA "Vision" and combining the New York, Copenhagen and Geneva headquarters Help Desks. Support for FLS and IMIS will also be provided. Also to be installed is IT Operation (ITO), the network and operating system agents required by the PROMS application.

79. The second phase will concentrate on rolling out enterprise management to field offices. This involves implementing ITO agents on the PROMS database hub, replicating field office personal computer and cc:Mail routers to enable the monitoring of PROMS transactions. Installing a network monitoring system, including for SAP and Lotus Notes, will enable proactive ITD management.

80. Expediting these tools and processes will enable ITD to manage better the UNICEF IT infrastructure and systems and is contingent upon the availability of funds in 1999 and into the next biennium.

VIII. Inter-agency cooperation

81. UNICEF regularly attends meetings of the Technical Subgroup of the Ad Hoc Open-ended Working Group on Informatics of the United Nations. This working group, which has broad responsibilities for United Nations information management, is now addressing Y2K issues, in terms both of how United Nations agencies are affected and of raising awareness, promoting action and information sharing among Member States.

82. In the Great Lakes region of Africa and other countries affected by emergencies, UNICEF and the World Food Programme are jointly utilizing the UNICEF SITA network and sharing wireless communications to send via e-mail, as well as sharing skills and resources based on an inter-agency Memorandum of Understanding (MOU). This has reduced cost compared to satellite telephone communications, which often are the only international option in other emergency situations. Most of the other field-based United Nations agencies have established contracts with SITA and are increasingly utilizing it for dial-up e-mail (used already in more then 100 UNICEF field offices) or in future, for Internet and Intranet access.

83. While there have been some common IT initiatives with different United Nations agencies, in general the IT environment of the United Nations system in the field is ad hoc, which impedes the sharing of services. Most other agencies do not have organizational standards. If they do, those standards cannot be economically shared or are not updated, or the agencies do not have IT field staff. In addition, managerial enforcement and IT strategy tend to be haphazard, resulting in a variety of equipment that is incompatible with UNICEF standards. Further, IT architecture may be based on decisions undertaken by a locally contracted support company, or by referring to old standards which have not been updated.

84. UNICEF regularly attends meetings of the common services task forces on IT and telecommunication as well as IMIS. Common services for IT, both in the field and at headquarters, provide the opportunity to reduce costs and share expertise, if exercised with a clear cost-benefit analysis and specific service level agreements, rooted, if required, in inter-agency MOUs. As various United Nations agencies and field-based funds and programmes are at different stages of maturity in terms of IT and its usage and role, the common service approach is a very challenging one.

IX. UNICEF information technology investments

85. The Executive Director and UNICEF senior management are fully committed to the expanded and critical role of IT for the organization and are actively involved in the numerous change processes for the implementation of the new systems and technologies and the global IT infrastructure. Budgetary restrictions, however, limit the pace at which the IT strategy can be executed organization-wide. A supplementary funds window was approved for the 1998–1999 biennium for the acceleration, deployment and enhancements of UNICEF global connectivity and the IT infrastructure, specifically for PROMS. To date, two donors have contributed. Contributions in cash or in kind (software or hardware) compliant with the UNICEF IT strategy and standards are also needed.

86. The level of IT investments, spending and staffing in relation to the total income of UNICEF and the global and decentralized nature of the organization's activities is far below the industry norm (both private and government sectors).

87. The ability of UNICEF to remain competitive is linked to the adequate allocation and sustainability of funds and investments in technology and IT staff at the level necessitated by the breadth and scope of UNICEF activities.

Investment structure and budgetary considerations

88. The strategic element of investment in IT addresses two aspects identified by the Secretary-General as critical to the success of the United Nations: to promote the comparative advantage in development knowledge; and to instil a new culture of communications within the United Nations. UNICEF IT investments can be divided into four different categories: informational; strategic; transactional; and infrastructure.

89. *Informational investments*. The major areas of investment in informational and document management for UNICEF are the Intranet and the Executive Information Systems. Document management encompasses the classification and categorization of the different studies, evaluations, analyses and knowledge-building documentation generated from UNICEF-assisted programme implementation. It falls under the purview of the Evaluation, Policy and Planning Division. In the past, this information was stored in the location where it was generated and not widely accessible to other staff in other locations. Developments in IT permit this information and experience to be accessible globally via CD-ROM and increasingly through the UNICEF Intranet. The Intranet is for the exclusive use of UNICEF staff worldwide (see paragraph 62 above).

90. The Internet and Extranet provide a means for advocacy and programme knowledge development and dissemination, represent a competitive necessity and are key determinants for the UNICEF market position, new business and activities and potential for increased resource mobilization.

91. *Transactional investments*. As discussed in chapter VII above, UNICEF is replacing a multitude of legacy systems for transactional activities in the areas of finance, supply and logistics, programme management and human resource management with three main integrated systems. The benefits include accurate, complete and reliable data that are available in a timely manner.

92. *Infrastructure investments*. A secure and reliable IT infrastructure is required for efficient, secure operations, providing support for the transactional, informational and strategic elements of UNICEF operations. This is critical for organizational integration, flexibility and standardization and reduced IT costs. The IT infrastructure spans areas of security services; software and hardware systems; operations, including telecommunications and data centres; global connectivity; database management and databases; the Lotus Notes infrastructure (used for the Intranet); and enterprise management.

X. Areas requiring further development

93. UNICEF has staff and partners in over 245 physical locations, almost all of them in developing countries. In order to take advantage of its global structure and maintain accountability, UNICEF requires proper IT staffing and skills, a global IT infrastructure, systems and tools. Some areas that require further development are discussed below.

A. Communication channels

94. Low-cost, reliable voice and data communication channels are essential to the operation of the organization. Presently, UNICEF has telecommunications and e-mail connections with all 245 offices and sub-offices, and Intranet access for over 60 per cent of country offices. However, the quality of e-mail and Internet connections in many countries needs to be upgraded and made secure to carry financial data. This is being addressed by the SITA "IPConnect" initiative. In the future, LAN-to-LAN connections and voice and video communications may be added over the same network.

95. The successful implementation of the global communication strategy requires increased capacity in the IT infrastructure beyond what is currently planned. As the ability to communicate quickly and easily across offices increases, the volume of traffic over the networks has grown exponentially. Already, the networks are faltering under the strain of the increased load and available funds are not sufficient to upgrade the network.

B. Resource management systems

96. Resource management systems, which allow the organization to monitor the work of managers who have decentralized authority, are a prerequisite for the responsible delegation of authority.

97. Work is well underway to replace all current UNICEF systems with an integrated system (PROMS, FLS and IMIS-HR) by mid-1999. The new integrated corporate system will give UNICEF a global capacity to manage its business processes effectively and efficiently and that will serve the organization well into the future.

98. However, systems changes of this magnitude require additional capacity to enhance and maintain the software, and run the sophisticated operational support needed to manage a multi-location system. Resources allocated for systems development will need to be redeployed for enhancements and maintenance. In addition, a capacity will be needed to analyse business processes in the major functional areas to ensure long-term dynamic evolution of the use of information for planning and management. A corporate EIS will have to be developed beyond the current planned reporting tools that will facilitate the use of this data for oversight by managers at country, regional and headquarters locations.

C. Information management

99. UNICEF needs tools and systems that allow the different parts of the organization to work together from different locations to develop, filter, store, disseminate and manage information on women and children. These tools will allow staff to develop and share relevant knowledge within UNICEF and with the external world. The Intranet is already a good source for this purpose with such tools as Lotus Notes being used for information management in different locations, and the PKN for the shared development of new program policies and the derivation of lessons learned and best practices in program management. Databases have been established on evaluations and monitoring, emergency-related information and child rights. (See also paragraph 59 above for information on the UNICEF web site).

100. To use the World Wide Web effectively for advocacy and fund-raising requires capacity to manage the content of the web site, including contributions from all parts of the organization.

D. Information technology organization

101. ITD and the IT function have been reorganized as described in chapter VI above. However, once the major systems are in place, in order to reflect the shift in emphasis from applications development to operational support and systems maintenance, additional changes in the IT organization will be required. Staff skills and job responsibilities in all locations must be upgraded to provide the capacity to sustain the new systems and technologies. The systems' success requires a high level of competence in staff at all locations to manage the IT infrastructure and to provide support to users. Currently, at headquarters, a number of key corporate functions are in the hands of temporary staff or consultants. This is a risk area that needs to be addressed, for without knowledgeable and highly skilled staff who are informed on UNICEF business processes, UNICEF IT investments have a higher risk of failure. This would have a direct impact on programme delivery and the effective management of resources. While some posts were reclassified in the previous biennium budget, the conversion of long-term consultants into staff functions at headquarters and the creation and upgrading of competencies at the regional and field office levels are required for successful implementation and future maintenance of new application systems.

E. Information technology infrastructure and support services

102. The transactional, informational and strategic elements of UNICEF operations must be supported by a robust, reliable and secure IT infrastructure. This is critical for organizational integration, flexibility, standardization and reduced IT costs. The complete IT infrastructure spans areas of security services; software and hardware systems; operations, including telecommunications and data centres; global connectivity; databases and database management; the Lotus Notes infrastructure; and enterprise management.

103. Some strengthening of the IT support services was possible in the 1998–1999 biennium budget, but this process is incomplete. As an example, the budgeted amount for support services per user at New York headquarters was around $2,850 per user in 1998, far below the industry norm of $6,000–$13,000 for adequate quality services. In addition, the range and complexity of UNICEF systems and services have increased significantly in recent years as UNICEF moves to a more connected environment of systems and networks. The result is an unacceptable level of strain on the

operational support staff, and an inability to provide the level of user support and system stability required. Continued strengthening of the IT infrastructure to accommodate the ever-expanding volume of data flowing through the networks and being processed in the databases will be required.